

## Influenza Prevention Survey at Mayo Clinic

### Principal Investigator:

- Cori L. Ofstead, MSPH  
Visiting Scholar, Vaccine Research Group

### Co-Investigators:

- Gregory A. Poland, MD      Vaccine Research Group
- Sharon Tucker, PhD, RN      Nursing Research
- Tim Beebe, PhD      Survey Research Center
- Lori Rhudy, PhD, RN      Nursing Research\*

\* Involved in 2007-2008 follow-up study

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## Study Purpose and Setting

### Purpose:

To support the development of more effective influenza prevention strategies by learning more about RNs' perceptions, knowledge, behaviors, and opinions related to influenza and vaccination.

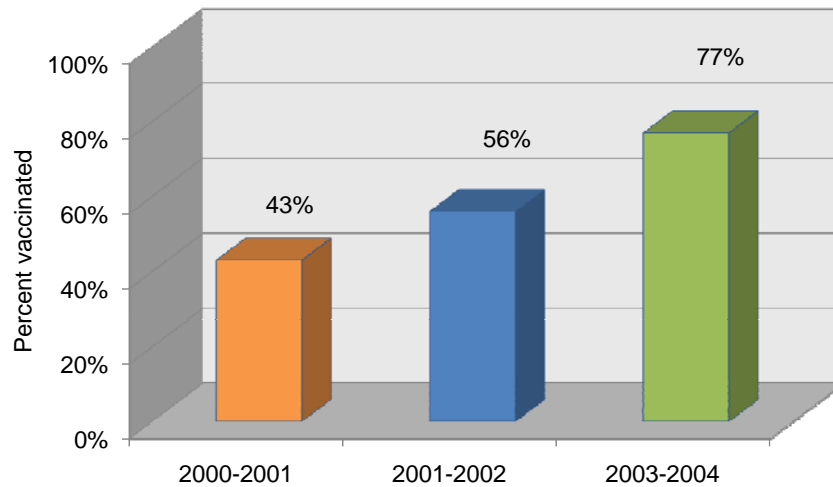
### Setting:

Mayo Clinic, a large tertiary care medical center that:

- Has a longstanding, multifaceted influenza vaccination program that includes educational interventions, convenient access to free vaccination at the worksite, and incentives
- Has attained high vaccination rates

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## Employee Vaccination Rates at Mayo (Including all types of personnel)



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Source: CDC MMWR, 2005

## Why Focus on Nurses?

- Influenza vaccination rates among nurses:
  - Vary considerably by unit (range: 0% to 100%)
  - Are lower than vaccination rates for other types of HCWs at Mayo Clinic
- Nurses typically have prolonged contact with patients, families/friends, and other HCWs, which places them and their contacts at increased risk of transmission
- The literature shows that nurses in most settings have lower vaccination rates than other HCWs

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## Research Questions and Hypotheses

- What are the associations between HCW vaccination status and education, knowledge, and personal experience?
- **Hypotheses were based on the Health Belief Model:**
  - Vaccination rates would be higher among RNs who:
    - Had received information
    - Were knowledgeable about influenza
    - Had contact with high-risk persons at home or work
    - Believed vaccination was safe and effective
    - Had received influenza vaccination in the past
    - Had been exposed to reminders and other cues to action
  - Vaccination rates would be lower among RNs who:
    - Had not received information
    - Did not have contact with high-risk persons
    - Had experienced or observed adverse reactions to influenza vaccination

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## Methods: Primary Collection of Survey Data

- Developed the “Influenza Prevention Survey”
- Pilot tested it with nurses at a local clinic
- Made refinements and formatted for web
- Administered to a random sample of 1,000 inpatient RNs
- Received 513 completed surveys
- Analyzed data



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## Influenza Prevention Survey Results

Random sample of 1,000 inpatient RNs

### Characteristics of Survey Respondents N = 513

- Female 89%
- Age (mean; range 22-69) 38 years
- BSN or more education 63%
- Average number of work hours (mean) 0.8 FTE
- Provide direct patient care 99%
- Work with persons at high risk for influenza 96%
- Contact with high risk persons at home 32%
- Personally had influenza  $\geq$  once 51%

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## Influenza Prevention Survey Results

### RNs' Experience With Influenza Vaccination N=513

- Ever administered flu shots 82%
  - Observed problems in others:
    - A local reaction (sore arm) 62%
    - A mild systemic reaction 58%
    - **A severe adverse event** **6%**
- Ever received flu shots 87%
  - Personally experienced problems: (n=445)
    - A local reaction (sore arm) 60%
    - A mild systemic reaction 36%
    - **A severe adverse event** **1%**
- Intend to receive influenza vaccine 65%

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## Influenza Prevention Survey Results

### Reasons for Declining Influenza Vaccination

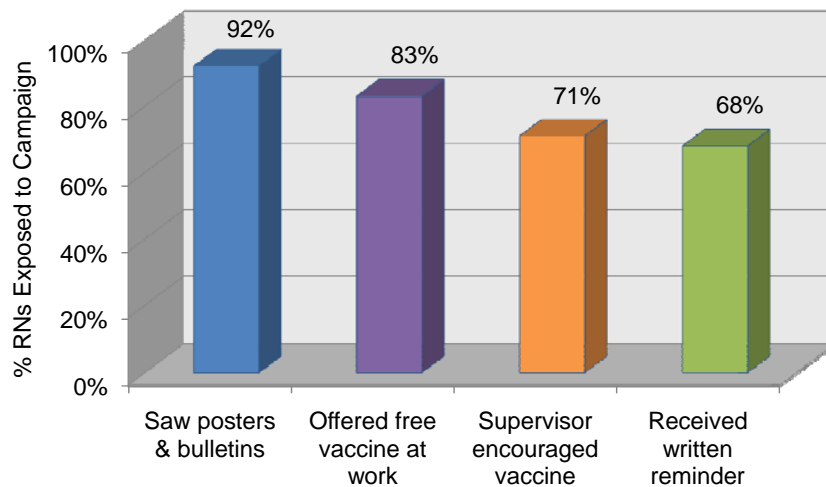
(Reported by 68 RNs who had never received vaccination)

I thought the vaccine should be used for other people at higher risk	63%
I was concerned about influenza vaccination side effects	57%
I do not believe I am at high risk for influenza	44%
I do not like to receive injections with needles	35%
I do not believe the influenza vaccine is effective	31%
I did not have time to get vaccinated	8%
My insurance does not cover it	0%

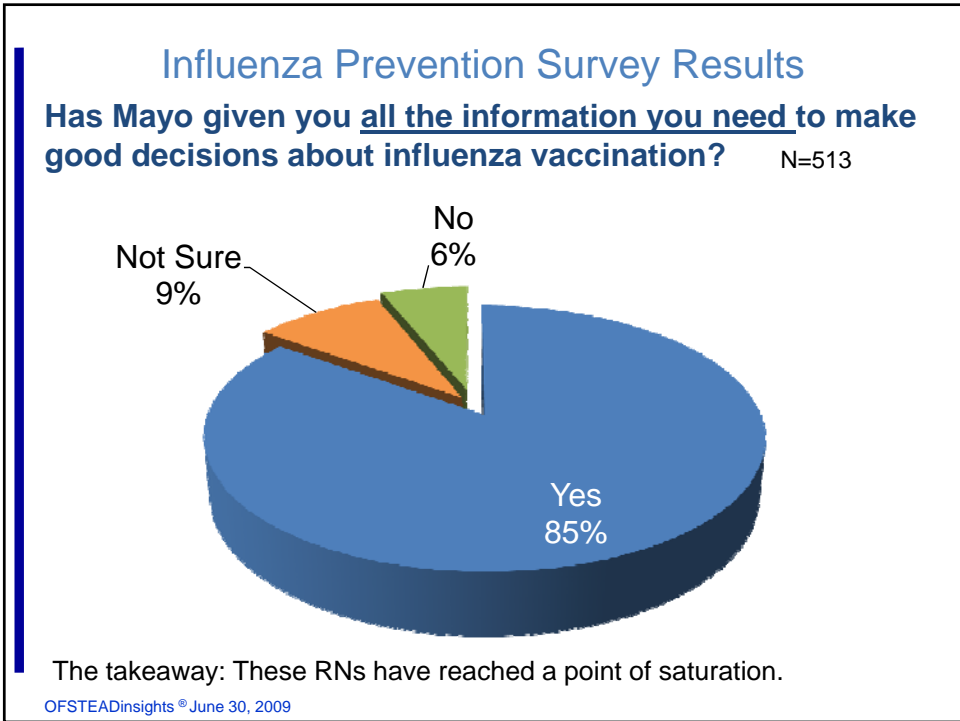
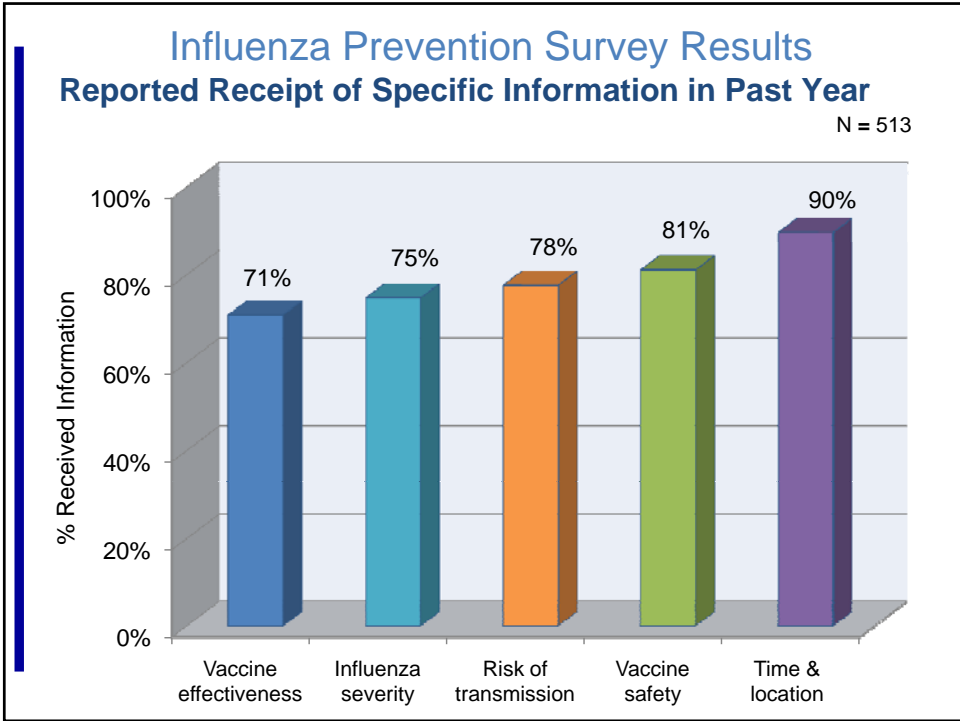
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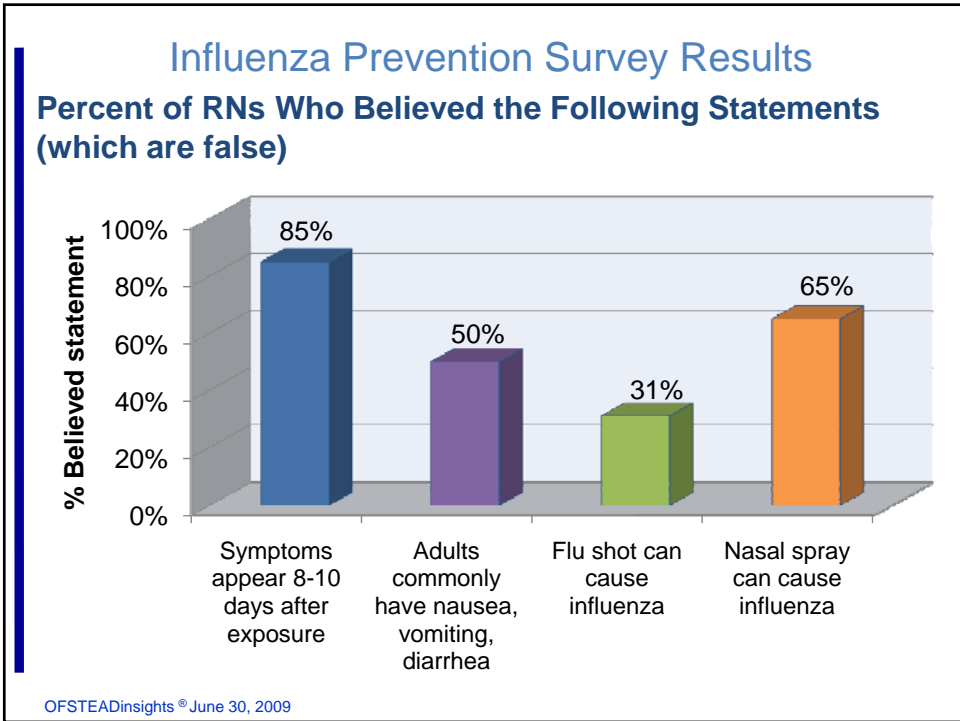
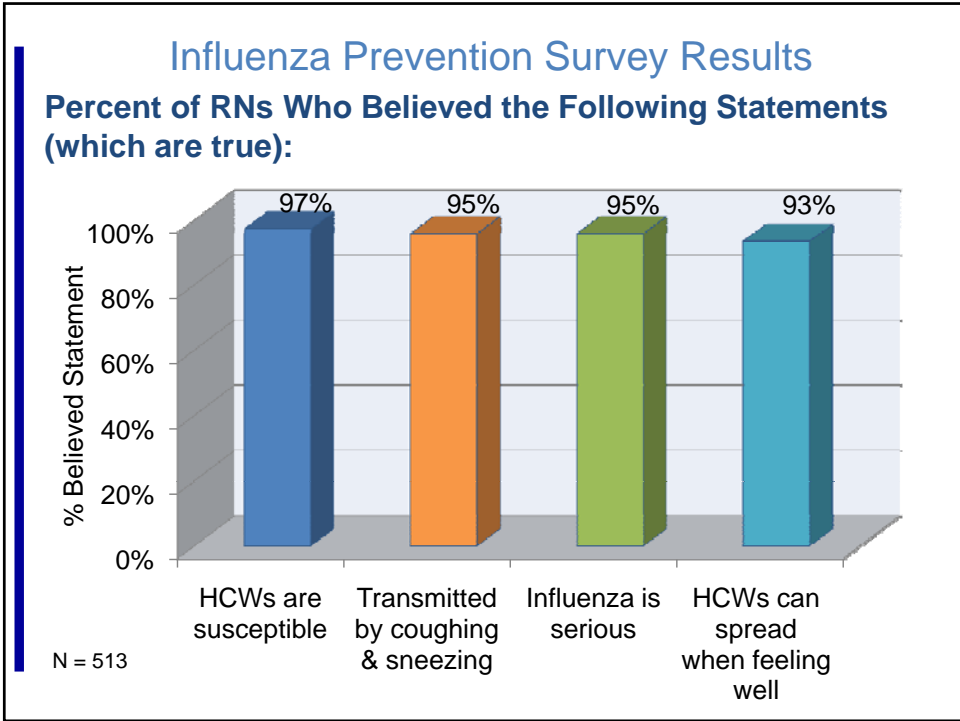
## Influenza Prevention Survey Results

### RNs' Exposure to Influenza Vaccination Campaign



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## Statistical Associations Between Vaccination Status and Other Variables

There was **no association** between vaccination status and:

- Education level or gender
- Receiving information or reminders about influenza
- Accurate knowledge about influenza
- Contact with high-risk persons at home or work
- Having experienced a local reaction
- Observing a severe adverse reaction in another person

There **was an association** between vaccination status and:

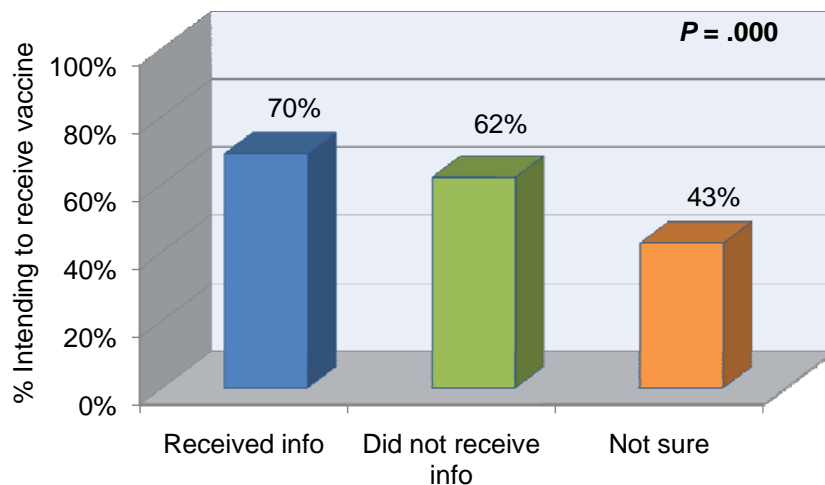
- Age
- Having received info specifically about vaccine safety & effectiveness
- Having received "all the information needed to make good decisions"
- Past receipt of influenza vaccine\*
- Having experienced systemic side effects or a severe reaction

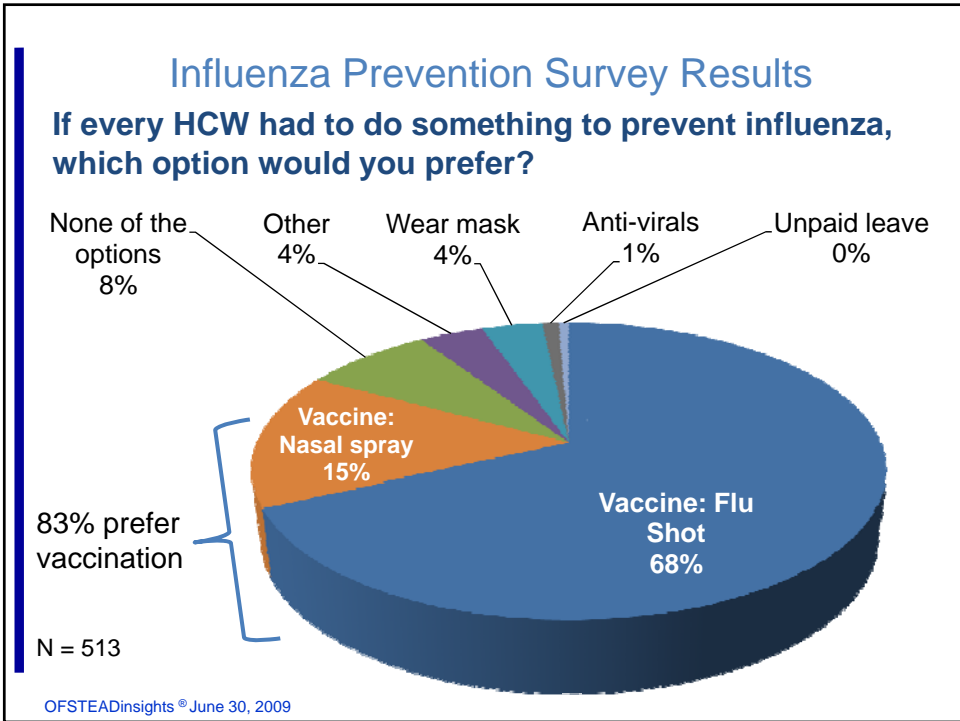
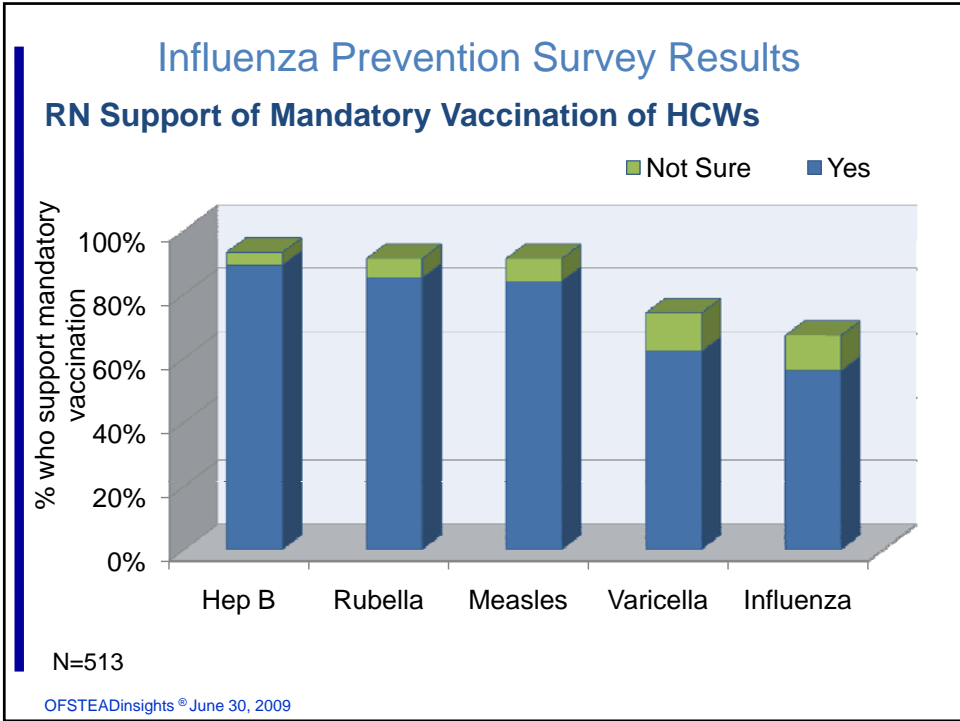
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\* Strongest association found; 73.3% who had vaccine in past intended to get vaccine vs. 7.4% who had never received vaccine

## Influenza Prevention Survey Results

### Association Between Receiving Info about Vaccine Effectiveness and Intent to Receive Vaccination





## On-Going Research at Mayo Clinic:

### How *do* they make decisions?

- In a follow-up study (Rhudy, Tucker, Ofstead, and Poland), we interviewed 14 RNs who did not intend to get vaccine
  - Influenza vaccination was not a priority for these RNs
  - They believed they were young and healthy, and thus not at risk of influenza

“I’m pretty healthy and active, so I guess I just kind of look at it like it is not going to happen to me. I’m young and healthy. How would I get influenza?”

“You know, if I get the flu, what is the worst that can happen? I will be off work for a couple of weeks. Is that really a big deal?”

“It’s not like I am usually sick, you know, so I don’t feel like I am the one carrying the sickness. And if I do get the flu or have gotten the flu, it’s every other year, every third year and it’s very mild. I get aches and pains and fatigued, but it’s not like I can’t function.”

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## On-Going Research at Mayo Clinic:

### How *do* they make decisions?

- They misunderstood the disease and vaccination
- They did not perceive vaccination would make them feel better or have personal health benefits
- They were afraid of the vaccine and concerned about side effects

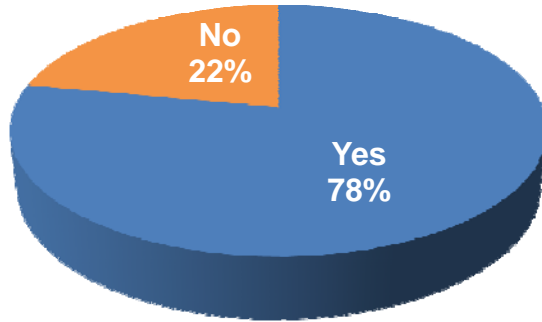
“What if some of these diseases are caused by vaccinations, and why are all these kids getting autism and ADHD and, you know, it’s like it is caused by the vaccinations they are getting.”

“The TB thing and the Hepatitis I completely understand, especially, because you don’t know if you are transmitting it to someone else, and it can be bad for your health. But, influenza, I wouldn’t say we have to do that.”

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## Influenza Prevention Survey Results

During the past year, did you have a cold or flu-like symptoms?



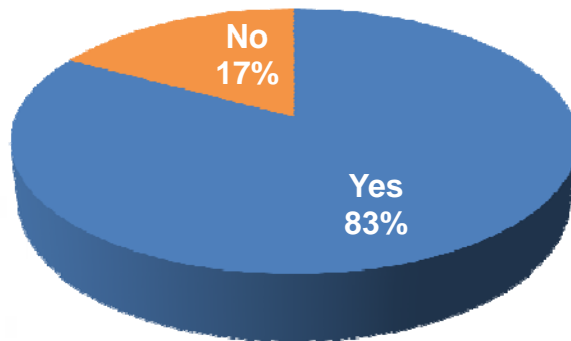
N=513

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## Influenza Prevention Survey Results

During the past year, did you come to work when you had a cold or flu-like symptoms?



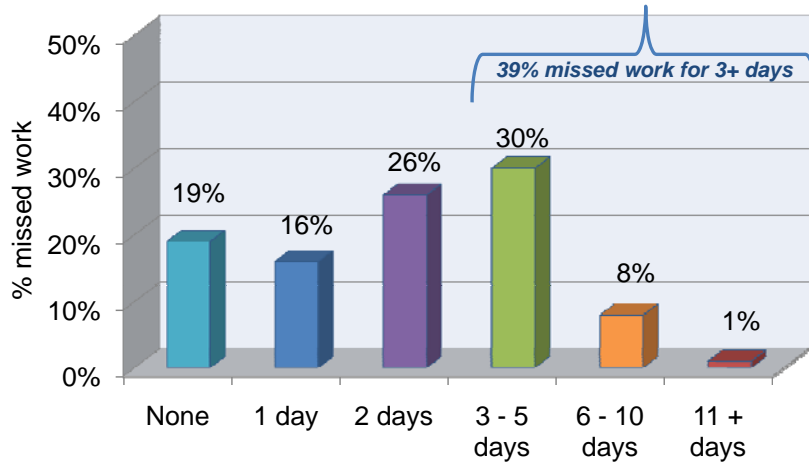
N=378

(only those who had colds or flu-like symptoms)

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## Influenza Prevention Survey Results

During the past year, how many days did you miss work due to a cold or flu-like symptoms?



N=402 (only those who had a cold or flu)

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## Factors Contributing to RNs Working When Symptomatic

What factors contribute to nurses feeling obligated to come to work even when they are not feeling well?

Pressure from co-workers	58%
Pressure from supervisors	52%
Pressure from family or friends	7%
A personal sense of obligation	84%
A desire to avoid using PTO for sick time	53%
Other factors	26%

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N=513

## Conclusions

- Interventions based on the HBM do not provide a sufficient basis for vaccination programs
- There is a ceiling beyond which the provision of further education does not increase vaccination rates—even when free influenza vaccine is readily available at the worksite.
- An ecological model (EM) would be more effective than attempting to increase vaccination rates by changing individual beliefs and behaviors.
  - Interventions using an EM engage not only individuals, but also organizations, communities, and policy makers to create environments conducive to risk reduction.
- Policies requiring HCW vaccination are necessary to protect HCWs, safeguard communities, and ensure patient safety.

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## According to Dr. Michael Bell CDC's Associate Director for Infection Control:

As of June 18<sup>th</sup>, there were 81 confirmed cases of novel H1N1 among HCWs, with documented HCW to HCW transmission.

*"I think that it's absolutely essential that health care personnel be vaccinated annually with seasonal influenza vaccine, not only for their own protection, but also to protect patients in the hospital.*

*I think an important concern to keep in mind is that an infectious health care provider can come into the hospital early in the course of their disease and spread a potentially dangerous infection to very vulnerable individuals in hospital settings. The vaccination protects not only the health care provider, but also that individual's patients."*

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CDC Briefing, June 18, 2009